

Illinois Natural Area Inventory (INAI) sites. These INIA sites are located on either side of the proposed alignment. Pilcher Park also contains a conservatory. As for the Enhanced Arterial Alternative, the affects to Higinbotham Woods and Pilcher Park would be the same as the Lemont Bypass Alternative because it shares the same alignment through these resources. However, the Enhanced Arterial Alternative avoids effects to the Keepataw Forest Preserve so the overall effects to parks and forest preserves would be less than the Lemont Bypass and Tollroad/Freeway Alternatives.

As for archeological, and historic/cultural resources, the effects would be greatest for the Lemont Bypass Alternative, followed by the Enhanced Arterial and the Tollroad/Freeway Alternatives. Major historic resources affected include one National Register of Historic Places resource, one structure listed on the Illinois Register of Historic Places, six structures listed on the Illinois Inventory of Historic Landmarks and four Illinois Historic Markers. As for threatened and endangered species, streams, floodplains, schools and cemeteries, there would be no substantive difference in comparative effects between Alternatives.

As for displacements, the Enhanced Arterial would require the greatest displacements compared to the Tollroad/Freeway and Lemont Bypass Alternatives. The displacement effects would be similar between the Tollroad/Freeway and Lemont Bypass Alternatives. As for noise, the Enhanced Arterial Alternative would cause the greatest noise effects followed by the Lemont Bypass Alternative because much of the alignment for these Alternatives is bordered by residential area. The Tollroad/Freeway Alternative would cause the least noise effects.

As for farmland, the Tollroad/Freeway Alternative would cause the greatest effects because it would be constructed on new right-of-way. This is in contrast to the Lemont Bypass and Enhanced Arterial Alternatives which improve existing roadways along some or all of their existing alignment. However, the loss of agricultural land within the Corridor will likely proceed regardless of whether the Tollroad/Freeway Alternative is developed since over 75 percent of the Project Corridor is planned for development.

In general, the environmental effects of the Build Alternatives to natural resources are clustered within two areas: the Des Plaines River Valley and along Gougar Road between Bruce Road and US Route 30. The Tollroad/Freeway Alternative crosses only one zone of clustered natural resources. This zone encompasses the Des Plaines River Valley and Keepataw Forest Preserve. The majority of effects to wetlands, floodplains and natural areas/preserves occur in this area. Within this zone, the Lemont Bypass and the Tollroad/Freeway effects are identical because they share the same alignment and footprint through these resources.

At 143rd Street, the Lemont Bypass Alternative diverges from the Tollroad/Freeway Alternative alignment and follows Gougar Road. Along Gougar Road, the Lemont Bypass crosses and affects the second zone of clustered environmental resources between Bruce Road and US 30. As the Lemont Bypass Alternative alignment proceeds south from Bruce Road along Gougar Road it crosses the proposed Spring Creek wetland mitigation site. Further south, the alignment borders Higinbotham Woods and Pilcher Park and the two Illinois Natural Area Inventory sites.

The Enhanced Arterial Alternative also crosses the Des Plaines River and Gougar Road zones discussed above. It also crosses the Des Plaines River at two other existing locations. Although these crossings were not included in the above review of comparative environmental effects because no roadway widening is proposed along those crossings, according to the Illinois Department of Natural Resources, any crossing of the Des Plaines River would encounter sensitive resources^(DNR, 2001). Also not considered above, but adjacent to those portions of the Enhanced Arterial alignment where no widening would occur, are the Waterfall Glen INAI and Romeoville Prairie Nature Preserve INAI sites.

In terms of effects to existing development, the majority of displacement and noise effects are along portions of existing roadway proposed for widening by the Lemont Bypass and Enhanced Arterial Alternatives. Widening of IL Route 171 as proposed by the Enhanced Arterial Alternative would cause substantial displacement effects because existing development in close proximity to the roadway. Displacement effects would also occur along Gougar Road, which is rapidly developing with residential use. As for noise effects, widening IL Route 171 and Gougar Road would route higher volumes of traffic closer to remaining development and result in higher noise effects. These noise effects would be difficult to mitigate with noise walls given the limited access control along the proposed principal arterial, numerous driveway entrances and close proximity of homes to the alignment. Berms are also effective, but would require a substantial amount of right-of-way to accommodate berms of adequate size to attenuate noise impacts.

In sum, with the exception of noise and displacements effects, the environmental effects associated with each Build Alternative were not distinguishing. In terms of quality, most of the sensitive resources are clustered in the Des Plaines River Valley near the northern project terminus and along Gougar Road near the southern project terminus. The Des Plaines River Valley is effected to an equal degree by both the Lemont Bypass and Tollroad/Freeway Alternatives due to their identical footprint. The Lemont Bypass Alternative affects additional park and forest preserve lands along Gougar Road. The Enhanced Arterial would also effect park and forest preserve resources along Gougar Road and, in addition, cause greater displacements and noise effects.

To conclude, given that 1) the effects to natural resources among the Alternatives were not substantive, 2) the noise and displacement effects would be higher for the Lemont Bypass and Enhanced Arterial Alternatives, and 3) the independent, professional review by municipal and county planning staff determined the Tollroad/Freeway Alternative to be most consistent with adopted plans and planning goals, the Tollroad/Freeway Alternative best satisfies the need to achieve land use and transportation planning goals. Refer to [Draft SEIS, Section 3.4.2](#) for more detailed findings addressing plan consistency.

3.4.3 Improve Regional Mobility

Improve regional mobility addresses a need to improve mobility for two types of trips: (1) non-local trips passing through the Project Corridor and (2) local trips originating within the Project Corridor and traveling to points elsewhere within the region and beyond.

Travel Times

An analysis of regional travel times ranked the Tollroad/Freeway Alternative as achieving the greatest reduction in regional travel time followed in rank order by the Lemont Bypass and the Enhanced Arterial Alternatives.

Reduction in regional travel time was quantified by totaling the number of TAZs where travel time would be reduced as a result of implementing each Alternative. A grid of TAZs covers the region. These TAZs are the basic geographic unit by which CATS measures traffic and travel time.

Table 3-4 presents the total number of TAZs showing a reduction in travel time by Build Alternative as compared with the No-Action (Baseline) Alternative. The Tollroad/Freeway Alternative improved regional travel times to:

- 144 percent more of the region than the Lemont Bypass Alternative, and
- Over 2,000 percent more of the region than the Enhanced Arterial Alternative.

Table 3-4 Number of TAZs with Travel Time Improvement			
Alternative	12 – 25 %	> 25%	Total
Tollroad/Freeway Alternative	330	102	432
Lemont Bypass Alternative	167	10	177
Enhanced Arterial Alternative	19	0	19

Exhibits showing the geographic extent of regional travel time improvements generated by each Alternative are presented in Draft SEIS [Exhibit 3-10, \(Tollroad/Freeway\)](#), [Exhibit 3-11, \(Lemont Bypass\)](#) and [Exhibit 3-12, \(Enhanced Arterial\)](#). [Draft SEIS, Section 3.4.3](#) presents detailed findings; [Draft SEIS, Appendix B](#) presents analysis methods.

The Tollroad/Freeway Alternative optimized regional travel time and carrying capacity due to the efficiencies of providing a continuous facility of comparable design and function to I-55, I-355 and I-80, the interstate facilities for which it connects. The Lemont Bypass Alternative ranked second in performance but lost efficiencies because it transitions from a tollroad/freeway facility at 127th Street to a principal arterial which then carries traffic south for three quarters of the alignment to I-80. Efficiencies were lost along the principal arterial segment due to a reduction in operating speed as well as a loss of continuity in design and function with I-80. The Enhanced Arterial Alternative ranked third. Efficiencies were lost due to a reduction in operating speed as well as a loss of continuity in design and function with I-55 and I-80, the interstates for which the principal arterials connects at the southern and northern termini. Additional losses were associated with only providing principal arterials as the highest facility. This would place regional trips on local arterials, further increasing congestion.

System Continuity

While additional capacity for north-south travel is needed to reduce travel times and improve regional mobility, adding capacity in a form that integrates into the existing highway network is also desirable to improve safety and mobility. This includes providing a highway facility that has continuity with, or matches, the functional design of the system for which it connects [\(AASHTO, 1990\)](#).

The Tollroad/Freeway Alternative is consistent in design and function to I-55, I-355 and I-80, the interstate facilities to which it connects. The Lemont Bypass Alternative provides this continuity at the north end of the alignment but not the south. The Enhanced Arterial Alternative would not provide this continuity.

To conclude, the Tollroad/Freeway Alternative improved regional mobility as measured by travel time to 144 percent more of the region than the Lemont Bypass and over 2,000 percent more of the region than the Enhanced Arterial Alternative. The Tollroad/Freeway Alternative optimized regional mobility by providing a direct north-south route through the

Project Corridor that is consistent in design and function to I-55, I-355 and I-80, the interstate facilities for which it connects.

3.4.4 Address Local System Deficiencies

Address local roadway system deficiencies responds a need to improve local mobility within the Project Corridor.

Local Roadway System Deficiencies

Local roadway deficiencies include the lack of a direct roadway for north-south travel, an inadequate number of bridge crossings over the Des Plaines River and a roadway network comprised of an outmoded functional mix of roadway types. These deficiencies constrain local mobility.

The performance of Alternatives in improving local mobility was quantified using safety and travel time measures. The safety analysis assessed crash data provided by both the Illinois Department of Transportation (IDOT) and the Illinois State Toll Highway Authority (ISTHA) to make a relative comparison of safety performance. There are well established relationships between roadway types, traffic volumes and safety performance. Refer to [Draft SEIS, Section 3.4.4](#) for a discussion of methods used in this analysis.

The crash analysis ranked the Tollroad/Freeway Alternative the safest of the Build Alternatives, with a percent reduction in crashes that was six times greater than the Lemont Bypass Alternative and 45 times greater than the Enhanced Arterial Alternative (Table 3-5). Despite higher vehicle miles traveled (VMT) than the No-Action (Baseline) Alternative, the Tollroad/Freeway Alternative improves safety performance because it is attracting more travel to safer facilities in the Project Corridor. Refer to [Draft SEIS, Section 3.4.4](#) for additional documentation concerning safety.

Table 3-5 Percent Change in Crashes within the Project Corridor over the No-Action (Baseline)	
Alternative	Percent Increase
Tollroad/Freeway	-2.18%
Lemont Bypass	-0.38%
Enhanced Arterial	+0.05%

Build and No-Action (Baseline) Travel Time Analysis

As for travel times, the Tollroad/Freeway Alternative achieved the greatest reduction in local travel time over the 2020 No-Action (Baseline) (Table 3-6). Compared to the other Build Alternatives, the Tollroad/Freeway Alternative reduced local times:

- 30 percent more than the Lemont Bypass Alternative, and

- 85 percent more than the Enhanced Arterial Alternative.

The cost savings associated with the reduced travel times attributable to the Build Alternatives over the No-Action (Baseline) Alternative totaled \$4.4 million annually in year 2000 dollars compared to \$3.6 and \$2.8 million for the Lemont Bypass and Enhanced Arterial Alternatives.

The cost savings of the Tollroad/Freeway Alternative were 22 and 57 percent greater than the Lemont Bypass and Enhanced Arterial Alternatives, respectively. Cost was measured as productivity cost defined as the Bureau of Labor Statistics average full-time hourly labor rate in year 2000 of \$13.76 multiplied by the time savings in hours over the 2020 No-Action (Baseline) achieved by each Build Alternative.

The Tollroad/Freeway Alternative achieved the greatest benefit to local mobility due to efficiencies gained by providing a direct route for north-south travel, and providing a facility that would remove or relocate longer distance regional traffic from local arterials to a facility designed to accommodate it. The Tollroad/Freeway Alternative also provides an additional bridge crossing over the Des Plaines River and would reduce traffic at the State Street/Lemont Road, 135th Street and IL Route 83 bridges over the Des Plaines River.

The Lemont Bypass Alternative ranked second and would also provide a direct north-south route, but the Alternative lost efficiencies by placing regional trips on local arterials. This constrained local mobility by increasing congestion and reducing safety on the local roadway network. However, as with the Tollroad/Freeway Alternative, the Lemont Bypass Alternative would also provide an additional bridge crossing over the Des Plaines River and would reduce traffic at the State Street/Lemont Road, 135th Street and IL Route 83 bridges over the Des Plaines River.

The Enhanced Arterial Alternative would attempt to accommodate heavy local demand as well as regional trips on local arterials and ranked third due to efficiencies lost along the alignment. Lost efficiencies resulted from reduced lane capacities and the need for numerous signalized and unsignalized intersections at street crossings due to the lack of access control. Efficiencies were further lost because the Alternative would not upgrade existing bridges nor would it provide a new bridge over the Des Plaines River.

In sum, the crash analysis determined the Tollroad/Freeway Alternative the safest of the Build Alternatives, with a percent reduction in crashes that was six times greater than the Lemont Bypass Alternative and 45 times greater than the Enhanced Arterial Alternative. In addition, the travel time analysis found the Tollroad/Freeway Alternative to achieve the greatest reduction in local travel times. Compared to the other Build Alternatives, the Tollroad/Freeway Alternative reduced local travel times 30 percent more than the Lemont Bypass Alternative and 85 percent more than the Enhanced Arterial Alternative. The reduced travel times achieved by the Tollroad/Freeway Alternative would save a to-

Table 3-6 Year 2020 Total Travel Time within Project Corridor during AM Peak		
Alternative	Total Travel Time (hours)	Percent Difference
No-Action (Baseline)	10,253	--
Tollroad/Freeway	8,956	-13%
Lemont Bypass	9,214	-10%
Enhanced Arterial	9,561	-7%

tal of \$4.4 million annually, which would be a cost savings 22 and 57 percent greater than the Lemont Bypass and Enhanced Arterial Alternatives, respectively. [Draft SEIS, Section 3.4.4](#) presents detailed findings of the safety, local travel time and cost analysis; [Draft SEIS, Appendix B](#) presents analysis methods.

3.5 **Conclusions**

The Alternatives analysis evaluated the performance of the No-Action (Baseline) and Build Alternatives in meeting the Purpose and Need for the Transportation System Improvement. The empirical performance measures used included travel time, cost, accident data, and land use and transportation plan consistency. The performance analysis ranked the Tollroad/Freeway as the only Alternative that satisfies the Purpose and Need. The No-Action (Baseline), Lemont Bypass and Enhanced Arterial Alternatives did not meet the tests in one or more categories. The overall ranking of each Alternative in meeting the four needs of the Purpose and Need is presented in Table 3-7.

Table 3-7 Alternative Analysis Summary Findings (Scale 1-3: 1 = Best, 3=Worst)			
Project Need/Alternative	Tollroad/Freeway Alternative	Lemont Bypass Alternative	Enhanced Arterial Alternative
Improve Residential Area/Regional Job Center Access	1	2	3
Achieve Land Use and Transportation Planning Goals	1	2	3
Improve Regional Mobility	1	2	3
Address Local System Deficiencies	1	2	3

The Tollroad/Freeway Alternative performed best in achieving each of the four needs. Compared to the other Alternatives, the Tollroad/Freeway Alternative generated the greatest reduction in travel times from residential centers to regional job centers and for regional travel. It also generated the greatest improvement to local mobility and safety. The Tollroad/Freeway Alternative also ranked as most consistent with the land use and transportation plans of local, county and regional government, which included an analysis of potential effects to environmentally sensitive resources. Compared to the Lemont Bypass and Enhanced Arterial Alternatives, the environmental effects of the Tollroad/Freeway were similar, while offering superior travel performance.

The Lemont Bypass Alternative, the second best performing Alternative, did not satisfy Purpose and Need because it did not meet the need criteria for improved regional travel, travel to job centers and the criteria to address local system deficiencies. The regional travel criterion was not met because the dual classification of the alternative (tollroad/freeway to the north and arterial to the south). With its frequent stops at at-grade intersections, the Lemont Bypass Alternative created a built-in disincentive to regional travelers. This is reflected in the ADT's shown on [Exhibits 3-5](#) and [3-6](#) in the Draft SEIS. At the south end of the Corridor the Lemont Bypass services 21,000 vehicles per day while the Tollroad/Freeway Alternative handles 47,000 vehicles per day.

The lack of system continuity was also a factor in the lower traffic volumes for the Lemont Bypass Alternative. To a lesser extent, these factors also degraded performance of the Lemont Bypass Alternative for improving access to regional job centers and resulted in poor travel times and a lack of traffic volume attracted to the facility. From a local

travel perspective, safety is better using the Tollroad/Freeway Alternative. Despite the higher vehicle miles of travel, this type of high-level facility historically has had a lower accident rate.

The performance of the Enhanced Arterial Alternative was substantially lower compared to the Tollroad/Freeway and Lemont Bypass Alternatives and did not satisfy Purpose and Need in several ways. Connectivity to the job centers to the north is limited. Regional travel is not met due to the difference in functional classification. The Average Daily Traffic at the south end of the Corridor as shown on Exhibit 3-7 is 20,000, less than either of the other two alternatives. While the Enhanced Arterial Alternative does help from a local travel perspective, this benefit is not enough to overcome the lack of performance in the other categories. From an existing land use perspective, this alternative uses and expands existing right-of-way corridors. This approach yields less farmland impact and overall requires less right-of-way to acquire. However, this approach also causes more displacement and noise effects as it brings the traffic closer to existing development.

Overall the differences in environmental effects across the range of alternatives were not distinguishing, with minor differences in magnitude for most categories. This, combined with the Tollroad/Freeway Alternative being the most consistent with regional and local land plans, plus the Tollroad/Freeway Alternative out performing the Lemont Bypass and Enhanced Arterial Alternatives in meeting the other project needs of improving access to regional job centers, reducing regional travel times and addressing local system deficiencies, justifies designating the Tollroad/Freeway Alternative as the Preferred Alternative. The Tollroad/Freeway Alternative provides a multi modal package of improvements that include new roadways, expansion of existing roadways, rail and bus service upgrades and TSM/TDM strategies. The Enhanced Arterial, Lemont Bypass, Expressway and Mass Transit Alternatives did not satisfy the Purpose and Need and therefore were eliminated from further study.